(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau





(43) International Publication Date 14 October 2004 (14.10.2004)

PCT

(10) International Publication Number WO 2004/088660 A1

(51) International Patent Classification⁷: G11B 20/10, 27/10, 27/30

(21) International Application Number:

PCT/EP2004/002999

(22) International Filing Date: 22 March 2004 (22.03.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 03007611.1

2 April 2003 (02.04.2003) EJ

(71) Applicant (for all designated States except US): THOM-SON LICENSING S.A. [FR/FR]; 46 Quai A. le Gallo, F-92100 Boulogne-Billancourt (FR).

(72) Inventors; and

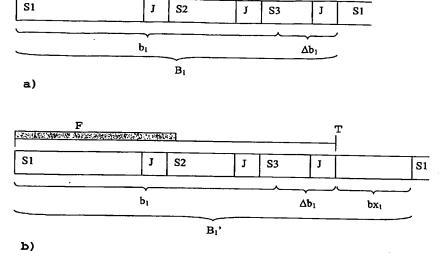
(75) Inventors/Applicants (for US only): ADOLPH, Dirk [DE/DE]; Wallbrink 2, 30952 Ronnenberg (DE). SCHILLER, Harald [DE/DE]; Apfelgarten 11, 30539 Hannover (DE). HÖRENTRUP, Jobst [DE/DE]; Gabelsbergerstr. 18, 30163 Hannover (DE). OSTERMANN,

Ralf [DE/DE]; Oberstr. 17, 30167 Hannover (DE). PETERS, Hartmut [DE/DE]; Ohweg 34, 30890 Barsinghausen (DE).

- (74) Agent: RITTNER, Karsten; Deutsche Thomson-Brandt GmbH, European Patent Operations, Karl-Wiechert-Allee 74, 30625 Hannover (DE).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK,

[Continued on next page]

(54) Title: METHOD FOR CONTROLLING AN OPTICAL PICK-UP FOR READING DATA STREAMS FOR SIMULTANEOUS REPRODUCTION



(57) Abstract: A method for optimizing a scheduler for an optical pick-up reduces the pick-up jump frequency and the initial start-up time for reproduction. The pick-up reads data streams from different files on an optical storage medium, e.g. Blu-Ray disc, and buffers the data streams in separate buffers, e.g. for video, audio and subtitles. Buffer sizes are optimized when the video buffer (B_1) is as small as possible, i.e. large enough to bridge the pick-up access and read times for the other streams (J,S_2,S_3) , and the buffers (B_1) for the lower rated streams are extended (bx_1) such that the pick-up access frequency for lower rated streams is an integer multiple of the pick-up access frequency for the highest rated stream, usually the video stream. Initial start-up time is minimized by filling the buffers initially only to a minimum required level.

WO 2004/088660 A1



TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,

ML, MR, NE, SN, TD, TG).

Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.